

GE  
Security

Fiber Optic Digital Video System  
Models S706V and S7706V

# installation instructions



imagination at work

**GENERAL**

This manual is a guide to the installation and operation of the S706V and S7706V series fiber optic video transmission systems. Please read the entire manual before installing the equipment.

**NOTE:** The series numbers S706V, S706VT and S706VR will be used to describe all models of transmitters and receivers unless noted otherwise.

The Series S706V video transmission systems offer transmission of one-way 8-bit digital video. The S706V system operates over one multimode fiber while the S7706V system uses one single-mode fiber.

A complete system consists of a transmitter, S706VT, and a receiver, S706VR. Units are designed for standalone operation or for installation in Fiber Options' 503H, 515R1 or 517R1 Card Cages or 501R miniature enclosures.

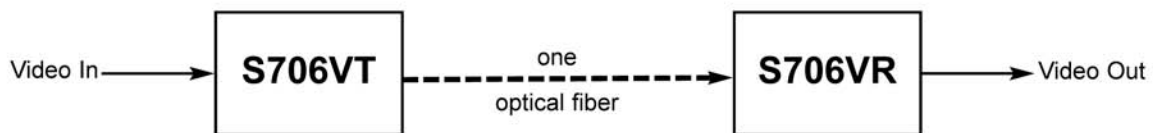
**Unpacking the Unit**

In the event that anything is missing from the following list, contact your authorized Fiber Options dealer or representative.

S706VT Transmitter or S706VR Receiver  
(S7706VT Transmitter or S7706VR Receiver)

Instruction manual

Save the original packing materials in case it becomes necessary to return the unit.

**BASIC SYSTEM DIAGRAM****INSTALLATION****Installation Considerations**

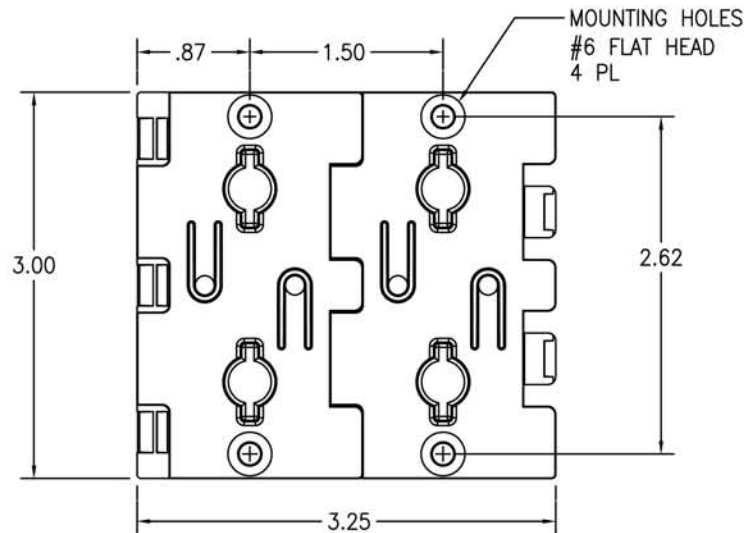
This fiber-optic link is supplied as a standalone module or as a rack card. Units should be installed in dry locations protected from extremes of temperature and humidity.

**Standalone Modules**

1. Determine where the module will be installed, and ensure that there is adequate space at both ends for making the various cable connections. See Figure 1.

**FIGURE 1: MOUNTING PLATE**

Mounting plate attaches to selected surface with four suitable screws. Standalone modules are mounted by sliding it onto the plate's hooks until firmly seated. The module can be easily removed and remounted.



### Rack Cards

Rack cards are designed to be installed in one of Fiber Options' 19-inch (483-mm) EIA standard card-cage racks, either the 503H, 515R1 or the 517R1. Follow these steps after performing MODULE SETUP procedures.

#### 515R1 and 517R1 Card Cage Racks

**CAUTION:** Although rack cards are hot-swappable and may be installed without turning off power to the rack, Fiber Options recommends that the power switch on the rack power supply be turned OFF and that the rack power supply is disconnected from any power source.

1. Make sure that the card is oriented right-side up, and slide it into the card guides in the rack until the edge connector at the back of the card seats in the corresponding slot in the rack's connector panel. Seating may require thumb pressure on the top and bottom of the card's front panel.

**CAUTION:** Take care not to press on any of the LEDs.

2. Tighten the two thumb screws on the card until the front panel of the card is seated against the front of the rack.

#### 503H Horizontal Card Cage

**CAUTION:** Although rack cards are hot-swappable and may be installed without turning off power to the rack, Fiber Options recommends that the power switch on the rack power supply be turned OFF and that the rack power supply is disconnected from any power source.

1. Make sure that the card is oriented right-side up, and slide it into the card guides in the rack until the edge connector at the back of the card seats in the corresponding slot in the rack's connector panel. Seating may require thumb pressure on the top and bottom of the card's front panel.

**CAUTION:** Take care not to press on any of the LEDs.

2. Tighten the two thumb screws on the card until the front panel of the card is seated against the front of the rack.

### MODULE SETUP

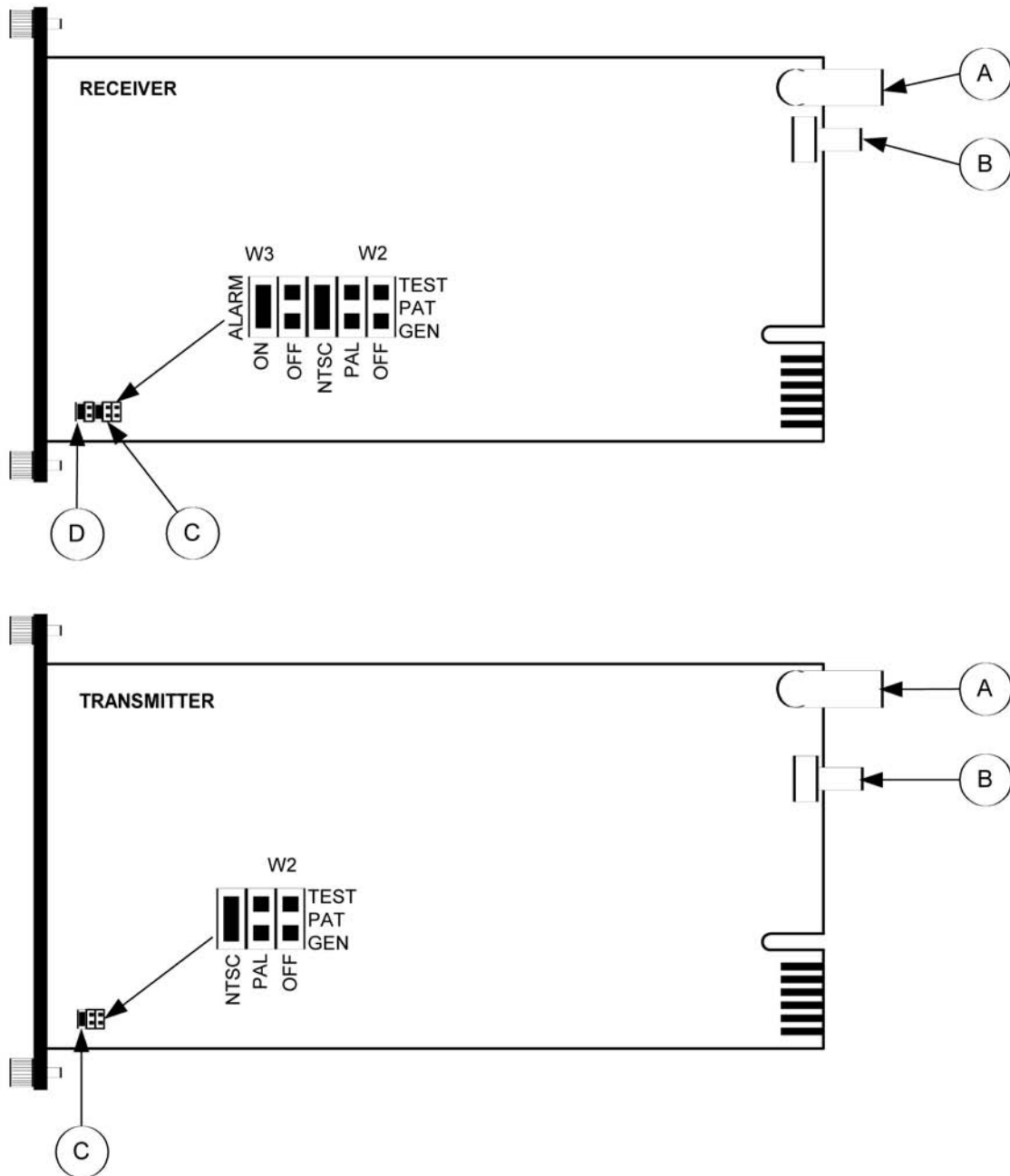
#### Alarm Jumper

Rack cards are supplied with an alarm function that activates if the optical signal input to the receiver fails. The alarm is always indicated on the front panel of the card by a red LEVEL/LOSS™ LED. The alarm may also be output to the rack power supply, where a sonalert (audible alarm) and alarm output contact closure may be activated.

The alarm is set to ON (ACTIVE) at the factory. If the alarm output is not desired, move jumper W3 to the OFF position. Refer to Figure 3.

**NOTE:** Setting Alarm jumper W3 to OFF does not affect the operation of the LEVEL/LOSS™ LED. Loss of optical signal will always be indicated by a red LEVEL/LOSS™ LED.

FIGURE 3: S706V RACK CARDS



**Legend**

Item	Description
A	Video Connector
B	Optical Connector
C	Video Format Select Jumper W2
D	Alarm Jumper W3



## Video Format/Test Pattern Generator

The S706V links support both NTSC and PAL video standards without adjustment. The S706VT transmitter and S706VR receiver have jumpers to select the video format for the test pattern generator. To set the video format for the test pattern generator:

**NOTE:** In order for the test pattern generator to operate properly, both the transmitter and receiver must be set to the same format.

1. On rack modules, set jumper W2 per local video standard (the PC Board is labeled "NTSC, PAL, OFF"). See Figure 3.
2. On standalone units, switch S1, located through mounting hole on back of unit, configures the test pattern generator. Position 1 enables test patterns when in the ON position. S1 position 2 selects video standard; ON selects NTSC, while OFF selects PAL. See Figure 4.

## CONNECTIONS

### Video Cable Connection

Both the S706VT transmitter and the S706VR receiver have one video connection.

Connect the video source cable to the input BNC jack on the S706VT transmitter. Connect monitor equipment to the output BNC jack on the S706VR receiver.

Fiber Options suggests that Belden number 9259 or equivalent coaxial cable should be used. Consult the cable manufacturer's specifications for the maximum distance between the video equipment and the fiber equipment.

### Fiber Optic Cable Connection

Most cable manufacturers identify the individual fibers in the cable. Select appropriately terminated fiber and mark both ends with unique identification label (e.g. for cable no. 03, fiber no. 08) to ensure that the fiber connected to the near end is the same one that is connected to the far end.

The proper optical connection will link the transmitter's TRANSMIT (OUT) port to the receiver's RECEIVE (IN) port. See Figures 3 and 4.

1. Wipe the inside of the port's sleeve with a lint-free pipe cleaner moistened with reagent-grade isopropyl alcohol. Blow dry with dry air.

2. Clean the connector using a lint-free cloth dampened with alcohol to thoroughly wipe the side and end of the ferrule. Blow the ferrule dry with dry air. Visually inspect the ferrule for lint.

3. Fasten the fiber optic cable to the port.

## Power Connections

### Standalone Modules

Standalone units may be powered either by 24 VAC or by 12-16 VDC. Connect input power according to the label on the module. See Figure 4.

### Rack Modules

Power connections are made automatically when the card is installed. To supply power to the rack, connect the rack power supply to an AC outlet and set the power switch to ON.

## SMARTS™ DIAGNOSTICS

The S706V has built in Status Monitoring And Reliability Test System (*SMARTS™*) diagnostic capabilities. This includes LED indicators for monitoring video and optical status as well as a video generator for verifying unit functionality. They are described in the following sections.

### Video Test Patterns

The S706V includes an internal video test pattern generator that can ease installation and troubleshooting. The test patterns generated can notify the user of a fiber failure or a video source failure by outputting specific test patterns on the user's monitor.

This will verify proper functionality of the digital decoding process as well as troubleshooting fiber optic interconnections.

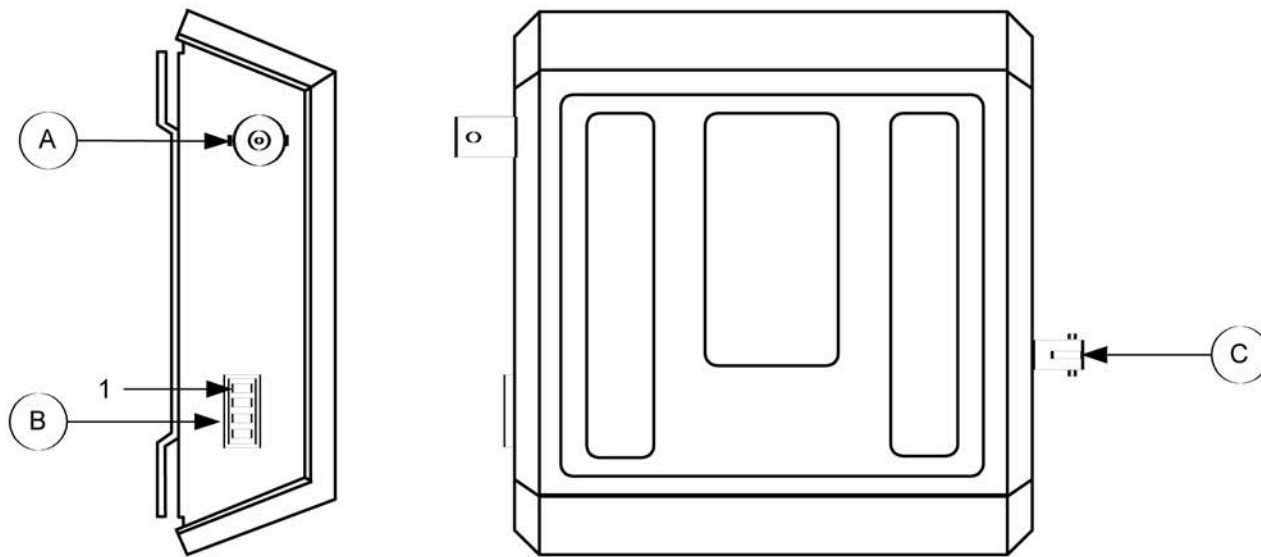
Follow the procedures described in VIDEO FORMAT/TEST PATTERN GENERATOR to enable the test pattern generator.

Table 1 provides a summary of the on-screen diagnostics displays that are available.

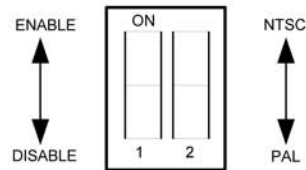
Disabling the test pattern generator causes no signal output during failure conditions.

NOTE: To provide earth ground reference, Stand Alone (Enclosure) modules need to be connected to a good earth ground. This can be accomplished by connecting a copper-based conductor from the modules *DC Common/Ground* pin to an approved earth ground.

FIGURE 4: STANDALONE MODULES



VIDEO TEST PATTERN SELECT AND TEST PATTERN GENERATOR ENABLE (LOCATED ON REAR OF MODULE)



Legend	
Item	Description
A	Video Connector
B	Power Connector
C	Optical Connector

Power Connections	
Pin	Function
1	+13.5 VDC
2	24 VAC Tx ONLY
3	24 VAC Tx ONLY
4	Ground/Common DC

NOTE: Rx modules are DC only.

**LED Operation**

Refer to the Table 2 for an explanation of how to diagnose system faults using the LEDs built into the Fiber Options units. The S706V has 2 LED indicators that are very useful in describing the current state of operation, as well as the current status of data flow and fiber optic signal strength. These indicators are LEVEL /LOSS™ and VIDEO. See Figure 5. They function as follows:

**LEVEL/LOSS™ Indicator**

This LED is useful for indicating the relative optical signal strength at the fiber optic receiver. When sufficient optical power is being received, the LED is green.

If no or insufficient optical power is received, the LED will be red. If test patterns are enabled a grey screen with two white vertical bars will be output. If test patterns are disabled the screen will be black.

**VIDEO IN (or OUT) Indicator**

This LED indicates the presence of a video signal. VIDEO IN on the transmitter remains green as long as an adequate video signal is being input to the transmitter.

The LED will be red when no video signal is present. The VIDEO OUT LED on the receiver performs a similar function, except that it refers to the video that is output from the receiver. If test patterns are enabled a grey screen with a single white vertical bar pattern will be output when no video is present. If disabled, the screen will be black.

TABLE 1: ON SCREEN DIAGNOSTICS

Monitor Display	Meaning
Single white bar	No video input to transmitter
Double white bar	No optical input to receiver

FIGURE 5: S706V AND S7706V FRONT PANELS

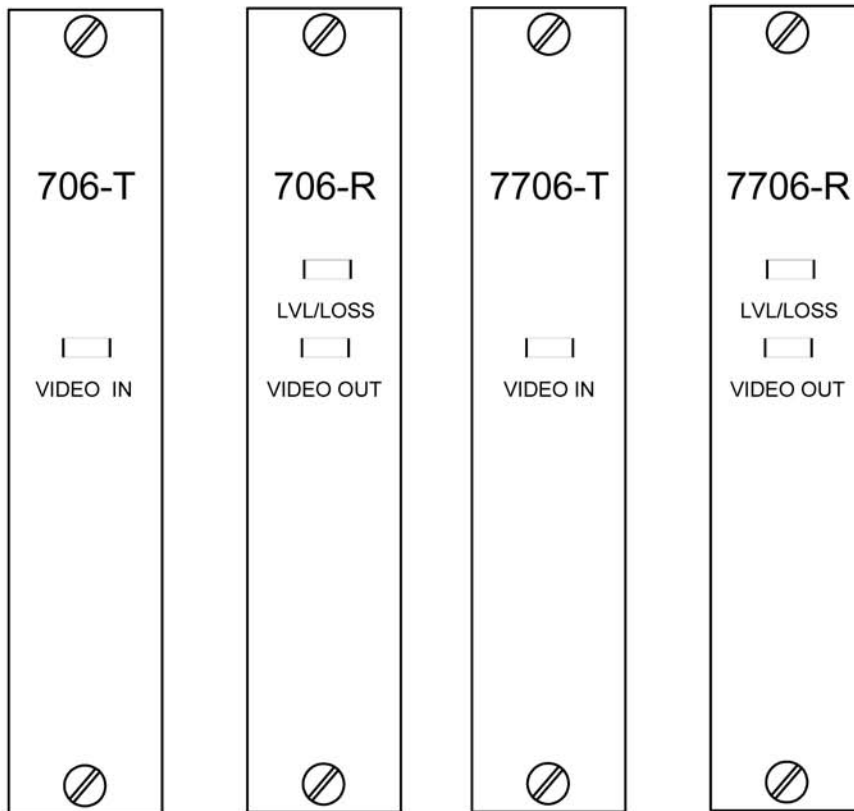


TABLE 2: LED DIAGNOSTIC INDICATORS

LED Name	Color	Indicates/Corrective Action
LEVEL/ LOSS™	Green	Sufficient optical power received. <i>No action required.</i>
	Red	Optical power not being received. Fiber open or transmitter or receiver inoperative. <i>Check fiber loss, connectors, and splices (if any).</i>
VIDEO (TX)	Green	Video coax input to link is good.(Note that even a totally black screen is a valid video signal.) <i>No action required.</i>
	Red	Video coax input to link is not good. <i>Check the camera and the coax into the link.</i>
VIDEO (RX)	Green	Valid video signal received.(Note that even a totally black screen is a valid video signal.) <i>No action required.</i>
	Red	No video signal received. <i>Check the camera and coax. Check the LEVEL/LOSS™ indicator. If the indicator is green, check the VIDEO LED on the transmitter.</i>

**NOTE:** The S706V monitors the video sync signals to determine the presence of the signal. It does not monitor the picture brightness signal. Thus, if the scene in front of a camera is totally dark, producing a blank monitor screen, the VIDEO LEDs will still be green.

## OPERATION

S706DV links operate automatically once installed. Refer to Table 1 for a description of on-screen diagnostic indications. For an explanation of LED color codes, refer to LED OPERATION and Table 2.

## MAINTENANCE

There is no operator maintenance other than keeping the units clean.

## Customer Support

For assistance in installing, operating, maintaining, and troubleshooting this product, refer to this document and any other documentation provided. If you still have questions, please contact technical support during normal business hours (Monday through Friday, excluding holidays, between 6 a.m. and 5 p.m. Pacific Time).

### GE Security

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Outside the toll-free area: 503 885-5700

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